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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SCHWARTZ, JORDAN MARC

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/609,232	Applicant(s) HAGIMORI ET AL.	
	Examiner Jordan M. Schwartz	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The Information disclosure statement received June 27, 2003 has been reviewed as per the attached 1449 form. For applicant's information, cover pages for information disclosure statements were received October 3, 2003, October 27, 2003, and November 3, 2004, however, 1449 forms were not attached to these cover pages. If additional references were intended to be considered then it is suggested that applicant resubmit a new 1449 citing these intended references (as well as providing copies and relevance if the references are foreign references and/or are not in English as per the MPEP).

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

Claims 1, 12-13, 15, and 22-23 (and their respective dependent claims) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to

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particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 1 and 15, the claimed "varying distances between the lens unit" renders the claims vague and indefinite. It is not clear which lens unit applicant is referring to. Presumably, applicant intended to claim, "between the lens units" (plural) however, this is also vague and indefinite. It is not clear if applicant means "between all of the lens units of the zoom lens system" or if applicant means "between all of the plurality of lens units" i.e between all of the claimed plurality (with the latter being the assumed meaning for purposes or examination) and the lack of clarity renders the claims vague and indefinite.

With respect to claims 12-13, and 22-23, applicant is claiming a condition concerning the term "f12w" which renders the claims vague and indefinite. Specifically, it is not clear if the intended meaning is that there are no intervening lens units between the claimed first and second lens units (in which case "f12w" would be the composite focal length of both of these units at the wide angle end) or if the intended meaning is that additional lens units can be between the claimed first and second lens units (in which case "f12w" would be the composite focal length of the first and second lens units as well as the units between). The lack of clarity renders the claims vague and indefinite. For purposes of examination the assumed meaning is "as claimed in claim __ wherein there is no intervening lens unit or units between the first lens unit and the second lens unit and wherein the zoom lens system fulfills the following condition...".

With further reference to claims 13 and 23, these claims are claiming a condition concerning “f3” as the focal length of the third lens unit, however a third lens unit has not been positively and distinctly claimed. It is therefore not clear if limitations were inadvertently left out or if the dependency of these claims is incorrect and the lack of clarity renders these claims vague and indefinite. For purposes of examination it is assumed that claim 13 meant to depend from claim 4 and that claim 23 meant to depend from claim 17.

Claim Objections

Claims 14-15 and 24 are objected to because of the following informalities:

1. Claims 14 and 24, line 5, “and reflective surface” should be corrected to “and the reflective surface”; and
2. Claim 15, line 2, a comma should be inserted between “system” and “a” i.e. “having a zoom lens system, a plurality of lens units”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-5, 7, 9, 11, 14-15, 17-18, 20-21, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishioka et al publication number 2004/0027684.

Nishioka reads on these claims by disclosing the limitations therein including the following: an imaging device and a camera comprising an imaging device (paragraph 0002); comprising a zoom lens system having a plurality of lens units to form an optical image (Figures 9-12 and accompanying embodiments such as figure 9 with "G1" and the variable mirror combined as a first lens unit and "G3" as a second lens unit together forming a plurality of lens units); to continuously zoom by varying distances between the plurality of lens units (Figures 9-12 and accompanying embodiments such as figure 9, paragraph 0032 with "G1" and the variable mirror combined as a first lens unit of negative power and "G3" as a second lens unit of negative power and "G3" moving thereby varying the distance between the "plurality of lens units"); an image sensor to convert the image to an electric signal (paragraph 0002 which discloses a digital camera); a first lens unit having an overall negative power and a reflecting surface to bend light 90 degrees (Figures 9-12 and accompanying embodiments such as figure 9, with "G1" and the variable mirror combined as a first lens unit); a second lens unit with a variable air distance from the first lens unit and having a negative power (Figures 9-12 and accompanying embodiments such as figure 9, with "G3" as the second lens unit); a third lens unit disposed with a variable air distance from the second lens unit and having a positive power (Figures 9-12 and accompanying embodiments such as figure 9, with "G2" as the third lens unit); a fourth lens unit disposed with a variable air distance from the second lens unit and having a positive power (Figures 9-12 and accompanying

embodiments such as figure 9, with "G4" as the fourth lens unit); the zoom lens consisting of the first through fourth lens units (Figures 9-12 and accompanying embodiments); the first lens unit fixed for varying the focal power (abstract, Figures 9-12 and accompanying embodiments in which the variable mirror moves for focusing only); not more than two lens elements disposed on the object side of the reflecting surface (Figures 9-12); satisfaction of the conditions of claims 11 and 21 (the accompanying embodiments for figures 9-12); and the satisfaction of the condition of claim 14 (the accompanying embodiments for figures 9-12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4, 6-7, 9, 11, 15-18, 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moskovich patent number 4,249,798.

Moskovich discloses the limitations therein including the following: an imaging device and a camera comprising an imaging device (abstract, column 1, lines 4-8); comprising a zoom lens system having a plurality of lens units to form an optical image (abstract, figure 1); to continuously zoom by varying distances between the plurality of lens units (Figure 1, column 3, line 53 to column 4, line 11, "C1" and mirror "32" combined as the first lens unit and "C3" as the second lens unit); a first lens unit having an overall negative power and a reflecting surface to bend light 90 degrees (Figure 1,

column 3, line 53 to column 4, line 11, column 5, lines 31-33, "C1" and mirror "32" combined as the first lens unit of negative power); and a second lens unit with a variable air distance from the first lens unit and having a negative power (Figure 1, column 3, line 53 to column 4, line 11, column 5, lines 33-46, "C3" as the second lens unit of negative power). Moskovich discloses the camera as one requiring film and therefore not comprising "an image sensor to convert the image to an electrical signal". However, the examiner takes Judicial Notice that it is well known in the art of zoom lens camera systems to use image sensors that convert images to electrical signals for the purpose of providing improved imaging. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the camera system of Moskovich as comprising an image sensor to convert the image to an electrical signal since such sensors are well known in the art of zoom camera lens systems for the purpose of providing camera lens systems of improved imaging.

Moskovich further discloses the first lens unit including a right angle prism (column 4, lines 33-36). The reference does not specifically disclose if the right angle prism has "an internally reflecting surface". However, the examiner takes Judicial Notice that it is well known in the art of camera lens systems that employ right angle prisms to use internally reflecting surfaces for the purpose of providing improved imaging. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the right angle prism of Moskovich as an internally reflecting prism since it is well known in the art of camera lens systems that employ right

angle prisms to use internally reflecting surfaces for the purpose of providing improved imaging.

Moskovich further discloses a third lens unit disposed with a variable air distance from the second lens unit and having a positive power (Figure 1, column 5, line 33-46, "C4" as the third lens unit); a fourth lens unit disposed with a variable air distance from the second lens unit and having a positive power (Figure 1, column 5, lines 33-46, either "C2" as the fourth lens unit); a fifth lens unit with a variable air distance from the fourth (Figure 1, column 5, lines 33-46, "C5" as the fifth lens unit); the first lens unit fixed for zooming (column 3, line 56); not more than two lens elements disposed on the object side of the reflecting surface (Figure 1); and the satisfaction of the conditions of claims 11 and 21 (Table 1).

Claims 1-4, 6-11, 14-21, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al patent number 6,785,055 in view of Japanese document number 08-248318 (Jp'318).

Nishikawa discloses the limitations therein including the following: an imaging device and a camera comprising an imaging device (abstract, column 4, line 65 to column 5, line 7); comprising a zoom lens system having a plurality of lens units to form an optical image (figures 3-4 and 8-11 and their respective examples); to continuously zoom by varying distances between the plurality of lens units (figures 3-4 and 8-11 and their respective examples); an image sensor to convert the image to an electrical signal (column 4, line 65 to column 5, line 7); a first lens unit having an overall negative power (abstract, figures 3-4 and 8-11 and their respective examples such as figure 11,

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example 11, "Gr1"); and a second lens unit with a variable air distance from the first lens unit and having a negative power (figures 3-4 and 8-11 and their respective examples such as figure 11, example 11, "Gr5").

Nishioka discloses as is set forth above but does not specifically disclose the first lens unit comprising a reflecting surface to bend the light ninety degrees. However, Nishioka further discloses that the system can comprise a reflective surface at any desired location within in order to bend the optical path and slim down the system (column 12, lines 18-25). Jp'318 specifically teaches that in a zoom lens system, it is desirable to have the reflecting surface that bends the light by ninety degrees within the most object side lens unit for the purpose of slimming down the zoom lens system while providing improved optical performance (English abstract, entire document and figure 1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the zoom lens system of Nishioka as comprising a reflecting surface to bend the light ninety degrees since Nishioka discloses that the system can comprise a reflective surface to bend the light and Jp'318 specifically teaches that in a zoom lens system, it is desirable to have the reflecting surface that bends the light by ninety degrees within the most object side lens unit for the purpose of slimming down the zoom lens system while providing improved optical performance. Jp'318 further teaches that this light bending reflecting surface can be in the form of an internally reflecting prism having an index of refraction ≥ 1.55 for the purpose of providing the improved optical performance (see examples and figure 1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention

was made to have the light reflecting surface of Nishioka as modified by Jp'318 as an internally reflecting prism with an index of refraction ≥ 1.55 since Jp'318 further teaches of such features for the purpose of providing a zoom lens system of improved optical performance.

Nishioka and Jp'318 disclose and teach as set forth above and Nishioka further discloses: third and fourth lens units of positive power (abstract, figures 3-4 and 8-11 and their respective examples such as figure 11, example 11, Gr2, Gr6); a fifth lens unit (abstract, figures 3-4 and 8-11 and their respective examples such as figure 11, example 11, Gr4); the first lens unit fixed for zooming (abstract, figures 3-4 and 8-11 and their respective examples); the "second lens unit" moving in a convex locus to the image side (figures 8-9 and 11); the zoom having not more than one or two lens elements on the object side of the reflecting surface (figures 3-4 and 8-11 depending on where the reflecting surface such as if it is placed on the image lens of lens G1 of figure 11); the zoom lens satisfying the condition of claims 11 and 21 (examples 3-4 and 8-11); the zoom lens satisfying the conditions of claim 14 and 24 (figures 3-4 and 8-11 depending on where the reflecting surface such as if it is placed on the image lens of lens G1 of figure 11).

Allowable Subject Matter

Claims 12-13 and 22-23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: with respect to the allowable subject matter, none of the prior art either alone or in combination disclose or teach of the claimed combination of limitations to warrant a rejection under 35 USC 102 or 103. Specifically, with respect to claims 12-13 and 22-23 none of the prior art either alone or in combination disclose or teach of the claimed imaging device or camera specifically including, as the distinguishing feature in combination with the other limitations, no intervening lens unit or units between the first lens unit and the second lens unit (the assumed meaning) and the satisfaction of the claimed mathematical conditions.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jordan M. Schwartz whose telephone number is (571) 272-2337. The examiner can normally be reached on Monday to Friday from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on (571) 272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jordan M. Schwartz
Primary Examiner
Art Unit 2873
February 8, 2008

/Jordan M. Schwartz/
Primary Examiner, Art Unit 2873